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PHILADELPHIA, AUGUST 19, 1876.

ORIGINAL COMMUNICATIONS.

EU-CATHARSIA, OR HINTS IN REGARD TO THE MECHANICS OF DEFECATION.

Read before the Philadelphia County Medical Society, March 22, 1876,

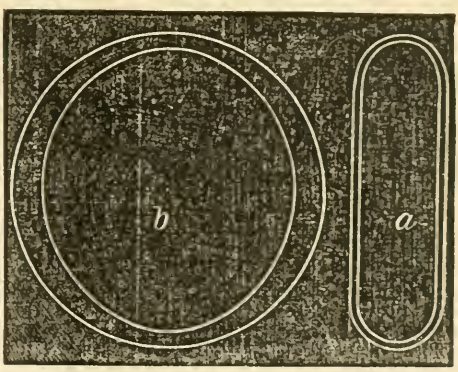
BY BENJAMIN LEE, A.M., M.D.

I FIND my apology for presenting the topic which I have chosen for this evening's conversation, in the well-worn and universally admitted adage that "Whatever is worth doing at all is worth doing well." It may be safely assumed that an act which every individual of the human race must perform frequently, and should perform daily, *is* worth doing well. It is not the less a matter of personal knowledge on the part of every one present, that this act is in too many instances, in fact in one sex almost universally, very badly done. Indeed, it is one of the unhappy results of civilization that it converts so many of our physiological into pathological acts, rendering that which should be an experience of unalloyed pleasure too often a constantly recurring source of misery.

While it is true that General Grose, who did valiant service for the Dutch under the Duke of Cumberland in the Flanders war, went for thirty years without an evacuation of the bowels, and that M. Poteau tells us of a young lady who, though she ate abundantly of fruit and liquid food, supplemented the urinary secretion only by copious greasy sweats, and that cases are not excessively uncommon where persons have gone frequently, or even habitually, for periods of weeks, without fecal discharges, yet the vast majority of the sons of Adam can hope for no such immunity from the daily demand of nature for self-purification.

One of the wisest and wittiest of modern British medical writers recommends that the tourist, in certain parts of Europe which are characterized by extreme filthiness in the latrines connected with their hotels, should, unless he can so far ingratiate himself into the favor of the landlady as to obtain the key to her private shrine, perform his duties *sub Jove*, in the open air. The objection to this primitive mode consists in the constrained position, which to the civilized man is very painful and fatiguing. A smooth sapling, upheld by two forked sticks, however, affords at once support, freedom, and ventilation, and with a little practice becomes extremely comfortable, as those of us who served in the field during the late war can testify. But such happiness is not for the slave of civilization. We must make the best of our bondage, and, by a careful consideration of the requirements of the case, strive to settle upon a rational basis for the construction of our support at this critical moment of our daily life.

The shape of the aperture in the seat of the stool or closet through which defecation is to be performed, is a matter of more moment than might at first sight appear. The ideal seat should give complete and easy support to the body without offering an obstacle to the passage of the fæces. But this is exactly what the old-fashioned



b, Ordinary shape of aperture.
a, Proper " "

seat (Fig. *b*), fashioned after the model of a *pôt-de-chambre*, considerably exaggerated (which is indeed still the prevailing type), fails, in both respects, to accomplish. We can probably all of us remember how, as children, we braced ourselves with both elbows in reasonable dread of falling through the yawning mouth into the horrible pit below. The writer recalls one instance at least in which a child several years old perished miserably from such an accident. Even in adult age an opening is occasionally found which gives one a sense of insecurity. Allowing the entire hemisphere of the fundament to enter its capacious jaws, it

produces a painful constriction, and, forcing the thighs together, actually diminishes the anal aperture and seriously interferes with the escape of the fecal mass. Especially is this the case with females, whose buttocks are fat and flabby. A properly constructed seat (Fig. *a*) not only will not thus force the soft parts together, but will assist in holding them apart. Its sides should be parallel, its edges smoothly rounded but not bevelled, and its length sufficient to admit the male organ without risk of defilement or contamination from touching the front edge. This would give us a longitudinal diameter of from twelve to fourteen inches, and a transverse diameter of from five to seven. The most complete separation of the nates is produced when the tuberosities of the ischium just slip within the margin of the aperture, as the soft parts are then retracted over these points by the weight of the body. This, in a majority of adults, is about seven inches. A less distance, however, probably affords more complete and comfortable support, say about five and a half inches. The ideal seat would be made adjustable to the breadth of the occupant by means of a small lever, like the jaws of a patent boot-jack. The height of the seat should be somewhat less than that of an ordinary chair, say about seventeen inches, so that a portion of the weight of the leg shall be borne by the foot. Having thus made rational provision for the objective requirements of the act, we are now prepared to consider the function itself from a subjective point of view.

Defecation constitutes the process by which the "dregs," the unavailable portions of the materials introduced into the alimentary canal as food, and certain of the effete products of nutrition, are gotten rid of by the economy. It may therefore be said to commence from the moment that the chyle ceases to be absorbed by the lacteals, that is, from the entrance of the alvine contents into the large intestine. The whole colon then,—if we possibly except the cæcal pouch,—from the valve of Tulpius to the end of the sigmoid flexure, may justly be looked upon as the organ of defecation, not less than the small portion of intestinal tube which terminates it. Our first difficulty is therefore likely to be met at the commencement of the large intestine. This is the more to be anticipated as the bowel is here compelled to lift its contents directly against the force of gravity during all the time that the upright posture is maintained. The frequency with which large fecal accumulations are found here in the right iliac fossa is well known. Our remedy for sluggish and ineffective peristaltic action at this point is simple, and, if persistently followed up, usually successful. It consists in firm and frequently repeated pressure, made either with the ends of the fingers or the closed hand, commencing at the caput cæci, and gradually working up the right lumbar region to the hypochondrium, then following the arch of the colon around to the left side and so descending to the left iliac fossa. The pressure should be always in the direction of normal peristaltic action. This operation, which is known as *massage* or kneading of the abdomen, should be performed by another than the patient, and if by a trained manipulator, all the better. The proper position for the patient during its performance is lying flat upon the back, with the abdominal muscles relaxed.

Another mechanical therapeutic means which is of very great value in stimulating peristaltic action and in relieving passive congestion of all the abdominal viscera, is vibration. This is accomplished by means of a treadle and fly-wheel, similar to that of the ordinary sewing-machine or turning-lathe. By means of various attachments, through eccentrics and levers, the rotation of the wheel is converted into vibrations, either vertical, horizontal, or curvilinear in their direction, of any desired rapidity, and applicable to the abdominal walls, the surface overlying the liver, or any other organ on which we wish to act, or to the extremities. The immediate effect of this rapid vibratile motion is to increase the surface-temperature of the part, promote nervous sensibility, and stimulate the capillaries to increased action. Its ultimate effect is to promote absorption of effete and effused material, hasten molecular change, invigorate the nutritive processes, and restore muscular tone. Applied to the liver it acts as a cholagogue, superseding the time-honored *massa hydrargyri;* —to the intestines, it arouses peristaltic action and provokes increased secretion from the mucous surfaces;—to the extremities, it warms cold hands and feet, overcoming venous stasis, and filling the muscles and integument with freshly-aerated blood. In this way it acts as an efficient derivative

from the overloaded portal and mesenteric systems of vessels.

We have now conducted the fecal mass into the upper part of the rectum; but this much-abused *viscus* has so often had its admonitions disregarded, has so often been compelled to retain an unwelcome guest, which it had done its best to expel, that it has become sulky and even insensible. It fails to respond to the internal stimulus. Without resorting to the cumbersome apparatus of the enema, is there any mechanical process by which we can arouse this slumbering guardian of the health and purity of the body to a sense of its responsibility and the performance of its function? Happily there is. It is described in works on the "movement cure" as percussion of the sacrum, and consists in striking the middle of that bone repeated hard blows with the heel of the hand. This procedure will generally be found, where there is any susceptibility of the rectum left, to be soon followed by the dawning of that not unpleasant expulsive sense to which common consent gives the euphemistic name of the "Morning Call."

The result is evidently produced by the agitation and vibration of the sacral ganglia.

The same result may, however, be often obtained by continued pressure on the same region, and with less effort. Let the patient, while enjoying his morning paper after breakfast, sit on the edge of a firmly-upholstered chair, and throw his body well back, so that the entire weight is borne upon the lower part of the sacrum and upper part of the coccyx, and he will not have more than time to wade through a long-winded editorial, before the pleasing summons will come.

Let us consider for a moment the forces at his command for accomplishing the act to which his sensations prompt him, and the mode in which they may be employed to the best advantage.

The natural impulse is, first, to incline the body forward, thus crowding together the abdominal viscera, throwing the descending colon and rectum as nearly as possible into a right line (I allude to this especially, as I shall hereafter mention an exception which is important in a diagnostic point of view), and affording a complete point of support for the muscles of respiration. The second step consists in inflating the lungs, closing the glottis tightly, and then throwing all the muscles of expiration into sudden, simultaneous, and persistent contraction, thus forcing the tense diaphragm strongly down upon the intestines, while the abdominal muscles, both straight and oblique, are making firm antagonistic pressure anteriorly and laterally.

This supporting pressure of the abdominal muscles is an essential to the perfect performance of the function. Hence, in those in whom these muscles have become weakened and wasted by improper compression from clothing and disuse, as is the case to some extent with most of our women, the result of the action of the other respiratory muscles is simply to bulge out the flabby abdominal wall, and to spend itself in that useless performance. In this condition, what mechanical contrivances can we resort to for the purpose of restoring tone and activity to these unserviceable muscles? If the abdomen is excessively pendulous, and heavily loaded with fat, it will be decidedly advisable to sustain it by means of an abdominal supporter of some kind. I rather give the preference to those which act by means of a steel spring, like a truss. But the essential remedy is, of course, exercise, graduated to the strength of the patient, and directed principally to the muscles in fault. In healthy, robust persons, horseback exercise is admirable; but many an invalid would be killed by it. For such as are unable to take this or other vigorous open-air exercise, I find an admirable means of restoration in the swinging couch. This consists of a stout frame, not less than four feet high, three feet long, and about two feet broad, supporting a flat, upholstered table, to the end of which is hinged a second table or leaf, of the same dimensions. The two together form a couch on which an ordinary person can lie at full length. To the side of the second leaf is attached a strong lever, which runs the whole length of the couch, and carries a heavy iron weight. Now, when a patient lies stretched upon this couch, the body resting upon the fixed portion and the hip-joint being on a line with the hinges, the limbs lying upon the movable portion are supported by the weight on the lever. By shifting this weight, we can either just equilibriate them, or force them upward so that the thighs shall be flexed on the trunk, or allow them to drop, producing a forced extension. In this way we can bring into

action either the lumbar or the abdominal muscles, or both, and with just such an amount of force as we consider the patient able to bear. At the same time (and this is an essential feature of all intelligent therapeutic exercise), all the other muscles of the body are in a state of rest. So that we act upon the muscles which we are anxious to develop, with the least possible expenditure of nerve-force. This exercise may be taken for from twenty minutes to half an hour, with intervals of rest. It is generally very much enjoyed by the patient, after the first feeling of awkwardness is overcome.

We will suppose, then, that by a proper course of mechanical therapeutics the torpor of the colon has been relieved, and the abdominal muscles have been restored to a good healthy tone, and that, by their action in connection with that of the expiratory muscles, the offending mass has been forced fairly down into the pouch of the rectum. The critical moment has now arrived. The patient is conscious of the pressure of a solid against the more or less resistant sphincter, but that is all. Renewed muscular efforts are made, but all to no purpose. The anxiously-sought relief is denied, and the unfortunate at length becomes aware that the mass is retreating again into the upper part of the rectum. What is the cause of this defeat, just at the moment of anticipated success?

That we may fully appreciate it, let us for a moment refresh our knowledge of the muscular anatomy of this viscus and region. As the intestine, having passed obliquely over the promontory of the sacrum, assumes the direct downward course to which it owes its name, it is amply supported posteriorly by the broad concave surface of that bone. As soon, however, as it arrives at the termination of the sacro-iliac symphysis, this osseous backing ceases, except for the middle portion, the gut falling back at its sides into the interspaces between the coccyx and the descending rami of the ischium, until, about an inch back of the anus, it fails altogether. These interspaces are known as the ischio-rectal fossæ, but, as the rectum itself often occupies them, it might be more exact to call them the ischio-coccygeal or ischio-anal fossæ.

The levator ani muscle, or lifter of the anus,—arising from the posterior surface of the symphysis pubis, and the edge of the pelvic fascia, all the way back to the spinous process of the ischium on either side,—swings under the inferior third of the rectum like an elastic hammock, its lower edge coming directly down to the thickened reduplicated band of circular fibres which we call the internal sphincter ani. Unlike these fibres, however, it is composed of striated fibrillæ and is entirely under the influence of the will. Its function is to elevate, not so much the anus, which it does incidentally, as the posterior wall of the rectum, and it would more appropriately be called *levator parietis posterioris recti*. When in a state of strong contraction, it obliterates the concavities of the ischio-rectal fossæ, and causes all the planes of the intestinal receptacle to converge downward to the orifice of evacuation. Now, the largest portion of the rectal cavity is that just within the sphincter. Frequent distention and compulsory retention enlarge this pouch to an enormous extent, stretching the circular muscular fibres until they are almost completely paralyzed, and at the same time obtunding the nervous irritability and destroying the expulsive sense of the part. We know how constantly, in making vaginal examinations, the finger will detect a large fecal mass low down in the rectum, of the presence of which the patient herself is quite unconscious; and he is a happy man who has not at some time during his professional life been compelled to assist in the parturition of such an ill-odored birth. Into this great flaccid pouch, then, up through the floor of which the cylindrical mass of the sphincters penetrates like a perforated cork in an india-rubber bag, the fecal mass is forced until it distends the tissues lying around the anus and between it and the tuberosities of the ischium. The muscles whose function it is to maintain the integrity of the inclined plane which should lead down on all sides to the internal sphincter, have been so long tampered with that they cannot or will not perform their office. What is to be done? Evidently we must borrow a "hint" from "the obstetric procedure," and *support the perineum*.

Direct your patient, when he finds himself unable to extrude the mass of whose presence he is conscious, to pass the fingers down along the coccyx. Either just in front of it, or on one side of the verge of the anus, he will find a round, hard tumor

covered by distended integument. Let him make firm pressure with the fingers on this tumor. In so doing he accomplishes two results. First, he converts the concavity into an inclined plane; secondly, he reinforces the exhausted muscles, giving them a new point of origin from which they can contract towards both extremities. They gladly acknowledge the assistance, contract with new hope, and in a twinkling the difficult labor is accomplished.

The essentials for Eu-catharsia, therefore, are—first, objectively, a support of the proper height, with an aperture of the proper shape and dimensions. Second, subjectively: 1st, a healthy vigorous tone of all the muscles of the trunk, but especially of the abdominal muscles; 2d, activity in the peristaltic action of the colon, and a normal condition of its secretions; 3d, a sensitive condition of the mucous membrane of the rectum just within the sphincter; 4th, a rectal cavity of normal size; and 5th, a stout *levator ani*.

These conditions may be promoted by such exercises as will tend to develop the abdominal and expiratory muscles without making a drain upon the nervous forces, by manipulations with a view to directly assisting the peristaltic labors of the colon, by pressure and percussion directed to arousing the sacral plexus to activity, and by direct support to the distended rectum and the paralyzed *levator ani*. The judicious and persistent use of these means, combined with hygienic measures directed to the improvement of the general tone of the system, would go far towards breaking up the pernicious use of medicinal cathartics.

I have referred to the position of anterior inclination of the trunk as favoring expulsion, and have alluded to an exception to this general law. This exception is as follows. The physician is occasionally informed by a female patient that it is very difficult for her to expel a mass of the presence of which in the lower bowel she is conscious, unless she holds herself very erect or even bends backwards. She desires, first, a reason for this singular fact, and, secondly, relief from it. My own experience has been that the obstacle to a free passage in these cases is usually a retroverted or retroflexed uterus, which effectually blocks up the lower portion of the rectum and prevents the descent of the contents of the upper portion unless they are almost fluid. When the trunk is strongly inclined forward, the abdominal viscera are crowded down on top of the pelvic viscera, and the malposition of the womb is exaggerated. The force which should assist in emptying the rectum is therefore exerted to bring its walls into complete contact at one point and effectually obliterate its bore. But when the trunk is brought up to a right angle, or still better an obtuse angle, with the thighs, the superincumbent weight is lifted off by the mesentery, the uterus is allowed to ride forward, and at the same time the rectum is drawn slightly upwards and backwards away from it, once more regaining its permeability. A permanent restoration of the uterus to its normal position is followed by an almost immediate and permanent removal of the embarrassment; but nothing else will give complete relief.

Closely associated with the subject of the extrusion of the solid contents of the bowel is that of the expulsion of its gases. These, when present in any considerable volume, are always abnormal and usually the origin of conscious suffering or uneasiness. Apart from the condition which we call colic, in which they are somewhat suddenly set free in such quantities as to distend the bowel until it resents by spasm, their presence constantly, in less amount, but sufficient to produce pressure upon the abdominal viscera, embarrass the circulation through the aorta, and compress the abdominal nerve-centres, is one efficient cause of that collocation of symptoms of depressed nerve-force and mental wretchedness which we designate by the non-committal name of *hypochondria*. Any one who has suffered even to a very moderate extent from flatulent dyspepsia, with torpor of the colon, knows what a load is removed from the burdened conscience, how the whole face of nature brightens up, when, after an hour of morbid dissatisfaction with himself and the world, he succeeds in getting rid of a rectum-full of sulphuretted or carburetted hydrogen. A simple mode of enabling such sufferers to accomplish this at will occurred to me many years ago, when assisting at one of Dr. Marion Sims's operations in his private hospital for diseases of women, in the city of New York. The patient was placed upon a table, in that admirable position for inspecting the vagina which has so properly received his

name, and I was soon forcibly impressed with the fact that she was, to use the expressive phrase of the colored attendant of one of my patients who suffers habitually from this cause, "changing the air of the room." This frequent escape of gas continued during all the earlier part of the operation, until the entire large intestine had probably been evacuated, its solid contents having been already removed by a preparatory enema. The next case of colic which occurred in my practice afforded me an opportunity of testing whether the fact thus observed could be utilized in cases of acute distention. The patient was a stout man, by occupation a merchant, aged about thirty years. I placed him on his knees, with the forehead resting on the crossed hands, the elbows being outstretched; but the pain was so excruciating that after a few moments' ineffective trial he resumed his former position. I was obliged to resort to opiates and chloroform. When these agents had considerably reduced the violence of the spasm, he again took the position on the elbows and knees, and this time with the desired result, large volumes of wind escaping freely. The next case in which I tried the plan was one of irritable nervous dyspepsia, accompanied by distressing flatulent distention, in a young professional man of rather sedentary habits and feeble peristaltic action. Dining late, he was often greatly disturbed by the accumulation of intestinal gases about bedtime, sometimes interfering with sleep. In this instance the postural treatment was most successful. Almost immediately on assuming it, the sphincter would be felt to be relaxing under the stimulus of the ascending gas, which soon flowed out in an almost constant jet until all uncomfortable pressure had ceased. In cases of this nature I can unhesitatingly recommend it as almost certain to afford relief at the time, and, by frequent repetition, to allow the intestinal muscles to regain their tone and thus permanently diminish the distention of the canal.

HIRSCHFELD.—*Le Monde Russe* announces the death of M. L. Hirschfeld, the eminent anatomist, at Varsovia, on the 28th of April. M. Hirschfeld was born at Varsovia, in 1814, and prosecuted his studies in the Universities of Breslau, Berlin, and Paris.—*New York Medical Record.*

A NEW VIEW OF THE PATHOLOGY OF SO-CALLED PHLEBITIS.

BY CHAS. B. NANCREDE, M.D.,

Assistant-Surgeon to P. E. Hospital.

LET me preface this paper by a few remarks on the microscopic anatomy of the veins, which it will be well to bear in mind, as thereby some of my later statements can be more readily comprehended. As is well known, the walls of a vein, when empty, readily collapse, while, on the contrary, those of an artery under like circumstances remain patulous. When we examine the relative distribution of the three constituents forming the vascular walls in each case, this fact is easily explainable. In the arteries we have the middle coat, consisting of a large amount of muscular and elastic tissue, the former more abundant in the small and medium-sized vessels, the latter in the large; while in the veins neither is present to any great extent.

To the amount of these tissues present the patulency or the reverse of a vessel is due.

Another fact of still more importance is that many veins are enclosed in a connective-tissue sheath, common to the accompanying arteries, and that all are closely surrounded by and in direct continuity with the same tissue. Indeed, their adventitia is really a portion of the connective-tissue system.

The microscopic anatomy of the veins presents no special points of interest relating to our present investigation.

I would next call attention to the capability of healthy granulations to prevent the absorption of the products of broken-down tissue, etc., as proved by some experiments of Billroth's on dogs; and, on the other hand, the exceeding readiness with which such substances are taken up from an unhealthy surface or the cellular tissue. Thus, Billroth found that the most putrid fluids when applied to healthy granulations, so long as they contained no cauterant substance, were not absorbed, whereas the same fluids in a fresh wound, or in the cellular tissue, produced the most profound systemic disturbance.

Now, as to the pathology of so-called phlebitis, I do not believe there is any such thing as an adhesive inflammation of the veins, as shown by an effusion of plastic lymph upon the intima, causing a secondary thrombosis. On the contrary, I

consider the thrombosis as the primary affection, and the inflammation as the secondary. As the limits of this paper will not admit my entering into the controversy, I will simply state the facts which have led me, in common with most modern pathologists, to enunciate the above-mentioned views of this disease.

A priori, it is difficult to conceive of a *non*-vascular tissue, such as the intima, initiating inflammatory changes, especially as most of its nutriment comes from the blood circulating through it. Then, too, were lymph effused, how could it remain in its soft semi-fluid condition attached to the vascular walls long enough to form false membrane or by its roughness induce coagulation of the blood? So great a difficulty did this fact present to the mind of John Hunter, who first systematically wrote on this disease, that he was compelled to suppose "that the coagulable lymph must undergo some change connected with the disposition which produced its extravasation.*" Again, Travers showed, by absolute specimens, that veins after ligature or division repair without adhesive inflammation.† Experiments on the lower animals prove, as far as they go, the extreme insusceptibility to inflammation of the lining membrane of veins. Both Lee and Callender have clearly shown that Gendrin's experiments were fallacious; for when the opening in the ligatured portion of vein was carefully closed, *no* lymph was found, *although it was abundant when the opening communicated with the surrounding inflamed tissues.*‡ On these and similar grounds, I am therefore compelled to conclude that the older writers mistook effect for cause, and *vice versa;* and I would therefore strike out the term *phlebitis*, and substitute that of *thrombosis*, or *thromballosis*, as Mr. Callender terms it.

I hope to demonstrate that this—the thrombosis—is the important part of what we are accustomed to call inflammation of the veins, and that it is certainly possible in theory, and probably to a certain degree feasible in practice, to obviate its occurrence. Until we understand the true nature of this or any disease, we can but combat its results; but, if my views of phlebitis are correct, we ought at least to attempt prophylaxis.

* Hunter's Works, vol. iii. p. 584
† Travers's Surgical Essays, plate xiii.
‡ Holmes's System of Surgery, vol. iii. page 359.

There is another point to which I must refer before proceeding to explain my views of the pathology of this disease, viz., the now universally accepted theory of the nature of fibrin. Alexander Schmidt, in the year 1872, demonstrated, by experiments with which most are doubtless familiar, that fibrin as such does not exist in the blood, but where a clot forms it is due to the union of two substances always present in the blood, and readily separable from it. One of these he calls fibrino-plastin, the other fibrinogen. They resemble each other closely in chemical composition. The fibrino-plastic substance is present chiefly in the blood-cells, and is probably identical with their globulin. The fibrino-genetic is the result of the retrograde metamorphosis of tissue, and is found in the serum. I do not mean that the former substance exists solely in the blood-cells, but most abundantly in them, for it can also be obtained from the serum. By the light of these investigations we can understand facts which were before explainable only by hypothesis, or which were referred to totally wrong causes. Before Schmidt's observations were published, there was no really credible explanation of the great excess of fibrin—the so-called *hyperinosis*—so constant an attendant of rheumatic fever. Now, when we reflect upon the high temperature in that disease, due of course to increased tissue-waste, we can see how an immense excess of the fibrino-genetic material is formed and retained in the blood, owing to the imperfect action of the secerning organs. So too in other inflammations—as for instance those due to traumatism, or in pneumonitis—we have a similar explanation holding good. There is but one other condition that I will refer to where this excess of the products of retrograde metamorphosis is especially marked, and where also we too frequently have thrombosis, or even heart-clot, viz., the puerperal state. When we consider the enormous mass of uterine tissue which is absorbed in the short space of six weeks,—the major part of this absorption taking place during the first ten days,—it must be evident how full the blood will be of fibrin-forming substance. I shall now pass directly to the consideration of the subject of my paper, and seek to apply the above facts to the elucidation of its phenomena.

Among the most important of the pre-

disposing causes of thrombosis is undoubtedly slowing of the circulation. This may be produced principally in three ways: first, by compression of the vessel, causing narrowing and therefore increased friction; secondly, by dilatation, as in aneurism and varices; and thirdly, by the feebleness of the heart's action. The first and second causes obtain in so-called phlebitis, where we have concomitant infiltration of the cellular tissue, and, as a rule, a typhoid condition of the system. The present views of the immediate cause of the thrombosis really amount to nothing, for they but refer it to some unknown condition of the system. I respectfully submit that my views of its causation, if correct, render it perfectly plain. In all cases of this affection the condition of the wound is eminently unhealthy, and it is therefore in the best possible condition for the absorption of the products of retrograde metamorphosis; this is one factor. The other is, that in natural hæmostasis, after any lesion of continuity, we have a clot sealing the opened ends of the vessels. Now, it is very clear that when the retrograde products reach the plugged vein by the next uninjured collateral, they meet here the fibrino-plastic substance in the hæmostatic plug, and we have a thrombus formed, extending towards the heart. Again, the next collateral above brings in fresh fibrino-genetic matter, which meets the older portion of the thrombus, and it again extends. But where will this stop? Will it not extend even to the heart? Not so, say most writers, because it will cease where the main vein joins the diseased one, the strong current of the former not allowing the clot to extend. But if this were strictly true it would never extend beyond *any* large collateral vessel, nor could fibrinous concretions form on the heart-valves. Both of these events do occur, however: so some other explanation must be sought.

On referring to my views, it will readily be perceived that there is, *a priori*, a very easy explanation of this, viz., The clotting must cease when no more collateral veins pour in blood coming directly from the disease-focus and therefore loaded with fibrino genetic matter. This, I say, would necessarily follow from *a priori* reasoning. Now let us see what information actual post-mortem reports give. I shall presently give two or three such in detail, but here say that they most singularly confirm my views, the clot always ceasing when no more impure blood is poured directly into the affected veins. These records are not chosen to uphold my theory, but are merely the only accessible ones sufficiently fully reported to be of service. They are quoted from Mr. Callender's article before mentioned, in Holmes's "System of Surgery." I do not doubt that all cases, if carefully examined, would show the same condition of affairs, and that should there be any apparent exception it will be found explainable by the fact that the inflammation does not extend as far as it seems, or that the wound, in some places, is sufficiently healthy not to absorb the broken-down detritus. If all these statements are correct, we can understand how in one case we have septicæmia, in another so-called phlebitis; in the former the lymphatics being favorably circumstanced for absorbing septic matter, in the latter the venous radicles. I will now give the post-mortem records. "In the body of a man brought to St. Bartholomew's for dissection, death having resulted from phthisis, the nates were covered with sloughing sores. The left femoral, just below Poupart's ligament, was filled with a firm coagulum which ascended to the junction of the epigastric vein. Attention was drawn to numerous veins about the base of the sloughs, which were more than usually conspicuous from being distended with clots. *They converged towards and formed the left internal circumflex, and so extended direct to the femoral;* and, without doubt, accounted for the clot which had formed there in direct continuity with those in the smaller vessels."* The italics are mine, in this case as well as in the others cited below.

Again, "In February, 1864, a woman aged twenty died after amputation of the thigh, with symptoms of pyæmia; there was no evidence of vein-obstruction about the vessels of the thigh, but on making a careful examination of the pelvis, to which I was led by the fact that a large bed-sore had formed over the sacrum, a thin plate of *fibrin was found at the junction of veins to form the right common iliac, but, being broken away from the mouth of the internal iliac, had allowed a quantity of soft clot-débris to pass into the circulation. This came from the ischiatic vein, which was filled throughout its entire length by old and*

* Holmes's System of Surgery, vol. iii. p. 361.

softened coagula. In this instance the thromballosis had extended in the veins about the sore on the sacrum, not from that about the amputation-wound of the thigh."*

Finally, we have the following case:

"On March 27, 1861, I examined the body of a man who died in St. Bartholomew's Hospital under the following circumstances. He fell from a height, and so upon some iron spikes, which penetrated one into either thigh. Diffused inflammation became established along the track of the wounds, more especially on the right side. On the fourth day, without material aggravation of the symptoms, the right saphenous vein became indurated along its entire length. The lungs became congested, symptoms of dyspnœa were added, and he died (typhoid) on the seventh day. The right wound extended across the thigh to its inner side, and unhealthy pus was diffused far and wide *superficial to the fascia lata.* The tissues around the saphena vein were laden with extravasated blood and with unhealthy sanious pus.

The glands, especially about the upper part of the thigh, were enlarged and blood-stained. The outer coat of the saphena was œdematous, the internal surface of the vessel was rough, and the inner coat was, for the most part, wanting. There was no increased vascularity of the vessel. Its canal was filled with sanious pus and occasional shreds of blood-clots. Just above the inner ankle it was suddenly contracted, and contained a tapering coagulum; and *here was the limit of the* surrounding inflammation. The *femoral vein at its junction with the saphena was laden with soft, colored clots, which extended into the external iliac.* The lungs were congested and œdematous.†

All these cases, especially the first, seem fully to sustain the view that the clotting only, and always, ceases when no more impure blood can meet the already formed thrombus. Some of the other cases reported by Mr. Callender may appear at first sight to be exceptions to this rule, but from the scantiness of the notes it is more than likely that this is only apparent, and that if the exact blood-territory injured were given, they would bear out my idea quite as fully as the others. In the last of these cases you will note that the intima is described as being roughened, and even absent in portions. By the older pathologists this was considered to be the initial lesion; but when we consider the source of this membrane's nutrition as before mentioned, and some other facts which I shall now detail, the error will, I trust, be self-evident. If we examine any thrombosed vessel, even soon after its occlusion, we shall find the walls infiltrated with a vast number of wandering cells, which insinuate themselves between the layers of the intima as well as between those of the other coats. Thus it is plain that the intima must lose its cohesion and readily tear, especially when its nutrition is cut off from the cessation of the blood-circulation through it.

Mr. Callender, when writing of the diffused suppurative form of phlebitis, says that it is so evidently a disease of the connective tissue surrounding the veins, that it ought really to be re-classed among affections of that system. If, however, the pathological views just enunciated be correct, he is wrong. Instead of the progress of the cellular inflammation being traceable by the thrombosis and hardening of the vessel, and causing the onward spread of the clotting, I should say that the onward spread of the thrombus *caused* the suppuration in the surrounding cellular tissue. When we find that in a healthy system a thrombosed vessel, say after ligature, has its walls infiltrated with what is practically pus, and that its adventitial coat in reality is a part of the connective tissue of the organ, it seems more rational to consider that suppuration occurs merely by extension of the inflammatory process by direct continuity of tissue favored by the depressed condition of the system.

Finally, let me "point the moral and adorn the tale," by considering the practical bearing of this new pathological view on prophylaxis, treatment, etc. First, let me refer to the wonderful results claimed by Mr. Lister and his adherents for the antiseptic method of dressing wounds. They rarely, if ever, have phlebitis occurring in their practice. Then, too, examine the series of successes in major amputations, reported by Mr. Callender a year or two back. Mr. Lister thinks these excellent results are owing to the destruction of microscopic organisms; while to me it seems more due to the rendering inert retrograded substances, and preventing such retrogression, in conjunction with no me-

* Op. cit., p. 371.
† Holmes's System of Surgery, vol. iii. p. 371.

chanical injury to the granulations. Mr. Callender's results are likewise attributable to the original antiseptic cleansing of the wound, and, above all, to the removal, as soon as formed, of the inflammatory products by drainage-tubes, aided by perfect quiet of the limb, obtained by swinging, and again the avoidance of mechanical injury to the granulations by using a camel's-hair pencil instead of a sponge.

From these remarks, it is plain what my moral is, viz., remove, or render inert, all dead or dying tissue and inflammatory products; avoid caustic and irritating applications likely to chemically or mechanically injure the granulations, thus rendering them capable of absorbing. Under this latter head I would place perfect rest of the inflamed part, which otherwise, by the play of the muscles, etc., may mechanically work the septic matters into the granulations. Indeed, Billroth claims that since he has used immovable apparatus in compound fractures, septicæmia, pyæmia, etc., have markedly diminished in his practice. How to fulfil the other indications must be left to the skill and ingenuity of the surgeon in each individual case.

CONSERVATIVE SURGERY.

BY JOHN W. KEATING, M D.

THE following notes, which will speak for themselves, were sent me a few days ago by Dr. Alexander J. Mullen, a prominent surgeon of St. Louis. The case is certainly an extremely interesting one, and unique so far as I can judge.

"On the 5th of September, 1856, I was called in haste to visit the family of Mr. John Mayingo, living three miles west of Napoleon, Ripley County, Ind. I was informed that a child had had its hand chopped off. With amputating-case under my arm and with Gilpin speed I soon arrived, and found a little girl about six years old lying on a bed, her right arm tightly corded below the elbow, supported on a pillow, whilst a cold, blue, shrivelled hand dangled from the string, held by a small portion of skin not an inch in width. Her appearance, as well as the quantity of blood scattered around, showed that much blood had been lost.

"Whilst an elder sister was chopping wood, she had attempted to gather chips from the block; the axe descended, striking the back of the arm about an inch above the wrist, cutting through both bones, dividing arteries, nerves, and tissue. The axe, on the radial side, cut into the block, leaving but a small portion of the integument on that side and on the under ulnar aspect. My first impulse was to form flaps and remove a portion of the bones, making the amputation complete. At that moment a large splaying-needle, sticking in the wood-work above the door, armed with a strong flax string, attracted my attention. The idea at once occurred to me to attach the hand firmly with strong sutures to the stump, let on the circulation, and trust to Providence for the result. The hand was firmly and with force pushed against the opposing surface, and two deep sutures, above and below, were tightly tied. The cord was removed from the arm, and the circulating medium allowed to go on its way rejoicing. No arteries were secured, the arterial blood being allowed to find its way as best it could in the apparently lifeless hand. The hand and arm were then fixed to a splint, and bladders of warm water applied. For a few hours there was a slight welling out of blood around the wound, trifling in quantity. No change was observed, either in appearance or temperature, until the fourth day, when the hand became puffy and the entire cuticle slipped off. I must confess that I felt like 'giving up the ship,' considering the efforts to save the hand a failure, and attributing the puffing to decomposition. But a few moments' reflection, after noticing the absence of odor emanating from the hand, assured me that it was not dead. On the fifth day a fungoid growth was observed sprouting from the entire line of the cut, purplish in color, from which, upon the slightest touch, oozed a thin sanious fluid. The hand now assumed a rosy hue, and the temperature began to rise. I regret that I was not at that time possessed of a clinical thermometer; it would have been not only interesting, but instructive also, to have noticed the daily changes taking place until the circulation was reasonably established. On the ninth day the soft ring of spongy granulations that wound around the arm was as large as a half-inch rope. Under gentle pressure, and the application of argent. nitrat., the granulations finally disappeared. The sutures were removed on the twelfth day, and the hand was saved. It was some two years before it became a useful member. I had the pleasure eventually of seeing that hand plying, with much grace, the needle."

ACCORDING to a statement recently made in the British Parliament, in Leicester men have been sent handcuffed to prison for refusing to obey the compulsory vaccination act. It was stated that such severity would not be again practised.

TRANSLATIONS.

Results of Concussion of the Brain and Spinal Cord in Railway-Accidents. —Dr. M. Bernhardt (*Berliner Klin. Wochens.*, 1876, p. 275) gives the following cases. A stout, healthy man received a violent concussion in a railway-accident, remaining senseless for some time, and being confined to his bed for three weeks with scalp-wounds, etc. When he was able to get about, he complained of general loss of strength, and of weak vision; during the first few weeks, of double vision. Examination at this time showed him to be in good general condition. He complained of headache, especially in the region of a scar some two inches in length over the left parietal bone. He was not particularly sensitive to blows on the head. He was more easily disturbed and depressed in spirits than previously. He was exceedingly sensitive to heat, which made him giddy and caused a throbbing in the scar. He could not bear the noise of wagons, etc., and was unable to ride in any conveyance. Stooping or looking up or suddenly to one side made him giddy. He could read, but only for a short time, as the letters soon began to swim before his eyes. The pupils were similar and reacted to light, which was unbearable if bright. The movements of the ball were perfect. No change visible with the ophthalmoscope. Hearing good; no buzzing in the ear. Taste and smell normal. Nothing abnormal in the region of the remaining cranial nerves, nor in that of the facial, trigeminal, or hypoglossal. Pressure over the spinous processes of the vertebræ is only painful towards the lower part of the neck. Subjectively, a feeling of tension was experienced in the loins; rising and sitting down could be accomplished with difficulty. Movements in the upper extremities were free, but there was a loss of motor power: the outstretched fingers trembled; it took him a whole day to write a letter, the fingers trembled so when used. The patient could stand with the feet together, even when the eyes were shut, and could also walk, but slowly and with careful steps. The left leg was slightly dragged. He could only stand a short time on either leg alone. All movements could be performed with the limbs, but a very little hindrance sufficed to stop them. The left seemed to have less power than the right. No disturbance of sensibility. The patient was aware of even slight movements, and localized correctly. He could perceive, if his bare feet touched the ground, what the nature of this was. His urine was normal, and passed without difficulty by a little extra exertion. He could only retain his stools (otherwise normal) for a very short time. In a somewhat similar case which came under Dr. B.'s notice, no symptoms of brain-trouble were observed for a week subsequent to the accident. This patient suffered greatly from hyperæsthesia. In commenting upon these cases, Dr. Bernhardt alludes to the difficulty of making an exact diagnosis regarding the portion of the brain most affected. He also suggests the treatment advisable, and points out the importance, from a legal point of view, of the fact that one of the patients went about his ordinary occupations for a week subsequent to the railway-accident before any brain-symptoms developed themselves. X.

Value of Phosphate of Lime as a Therapeutic Agent. — Messrs. Paquelin and Jolly contribute an article on this subject to the *Bulletin Gén. de Thérapeutique*, June 15, 1876. The conclusions at which these investigators have arrived are as follows:

1. Phosphate of lime is only absorbable in minute proportion.

2. The organism can, in general, only assimilate it in very small quantity.

3. The circulation can carry only insignificant quantities. The tissues, with the exception of the bones, contain, so to speak, only traces.

4. Lime penetrates the organism under two conditions; in small quantity under the form of the biphosphate, in a somewhat larger proportion under the form of non-phosphatic salts. Part of these non-phosphatic salts pre-exist in the food (carbonate of lime), the other part is one of the products of the decomposition of the alimentary phosphate of lime by the acids of digestion (chloride of calcium, lactate of calcium, etc.).

5. The economy itself makes its phosphated lime in the way of a double exchange, and finds in the food all the elements necessary to augment, according to its means, the production of this substance.

6. The phosphate of lime of the urine is, for the most part, an intra-vesical product;

the totality of the phosphate of lime of the urine is not, therefore, a direct product of disassimilation. The figures usually given as representing normally the mean amount of phosphate of lime disassimilated are incorrect.

7. Artificial phosphates of lime, soluble or insoluble, are rejected by the excrementary passages without having been utilized.

8. The addition of phosphate of lime to the alimentary regimen is an obstacle to nutrition.

9. The soluble preparations of phosphate of lime act as acid principles. x.

Radical Operation for Empyema.—Peitavy (*Berlin. Klin. Wochens.*, 1876, No. 19) recommends resection of one of the ribs as the most satisfactory operation for empyema. The usual incision he thinks unsatisfactory, because it begins to close up so quickly, and, consequently, after a short time the catheter or canula can only be introduced with difficulty, and finally not at all. If retained in situ, the canula gives great annoyance and pain. Peitavy takes out about an inch of the rib (the sixth, seventh, and eighth are mentioned in his cases), an operation which can be performed easily and without loss of blood. The cases which he gives in support of this procedure are few in number, but very striking. The resection not only allows free escape of pus, but, in healing, contracts the diseased cavity; and it is this last effect which Peitavy thinks is the most important, since in some of the cases the external wound healed over while there was still pus in the cavity, and yet the patient made a good recovery. x.

Permanent Change of Color in Hair and Skin following Scarlet Fever.—Dr. Wallenberg attended a patient suffering from scarlet fever, in whom the desquamation took a peculiar form, the skin being raised from the site, over almost the entire surface, by exudation, so that the latter was exposed in places over an area the size of the palm, or covered with crusts of dried serum. Here and there were abscesses, which it was necessary to open. As the patient refused to take baths, the exudations clung to the surface for several weeks, during which time the finger- and toe-nails dropped off, as well as every particle of hair from all parts of the body. While this shedding process was most curious, the result was still more worthy of notice. The patient, who, it should be said, was a laborer, twenty-one years of age, had had a brown skin and hair. After the general desquamation, the hair returned again, only white like that of an albino, while the skin itself was milky-white with a reddish tinge. Dr. W. gives some particulars as to the hair and skin, and quotes other cases.—*Vierteljahrs. f. Derm. u. Syph.*, 1876, p. 63. x.

Etiology of Angina Pectoris.—According to G. Sée (*Berlin. Klin. Wochens.*; from *La France Méd.*, 1876, No 26 et seq)., angina pectoris is not dependent upon a peculiar neurosis, but upon ischæmia of the heart. As original causes may be mentioned mechanical changes in the coronary arteries in connection with degeneration of the cardiac muscular tissue, and dilatation of the cardiac cavity. By this means the coronary arteries are insufficiently nourished, and at the same time an insufficient supply of blood is brought to the heart. Occasionally, but much less frequently, purely functional disturbances in the coronary arteries are the cause, as in coughing, hysteria, etc. Actual organic lesions are, however, most usually at fault. By this ischæmia of the heart, Sée explains all the symptoms, as well as the cause of death. When the myocardia and, at the same time, the nerve-terminations are supplied with too little blood, pain will be caused simply from this anæmia, and this is the origin of the agony. This irritation of the sensitive nerves excites reflexly the motor twigs of the vagus, which induces slowness of pulse towards the end of the attack, with the concluding interruption of cardiac contraction. Later, exhaustion of the vagus occurs, and following this the final acceleration of the pulse which is observed. The painful irradiations into the shoulder and arm, as well as into other parts of the body, are explained by Sée as the result of transmission from the nerves originally irritated to various other sensitive nerves. As remedies, Sée recommends strongly subcutaneous injections of morphia or enemata of hydrate of chloral to the amount of two to three grammes (30 to 45 grains). Liquor ammon. acetat., diluted with an equal quantity of water, six to eight grm. (f℥ss ad f℥ii), is sometimes of service. Sée has had no experience with nitrite of amyl. In the intervals, he recommends bromide of potassium, digitalis, rest, and hygiene. x.

PHILADELPHIA
MEDICAL TIMES.

PHILADELPHIA, AUGUST 19, 1876.

EDITORIAL.

THE MEDICAL AND SURGICAL HISTORY OF THE CIVIL WAR.

MUCH as has been said and written about the medical and surgical history of our late war, we doubt whether many of our readers have a clear idea of the plan of the gigantic undertaking for the completion of which Drs. Woodward, Otis, and their fellow-gnomes have been so long digging and delving, hammering and shaping, amid the multitudinous records of the Surgeon-General's office and in that cemetery of human suffering, the Army Medical Museum. What with Congressional acts and counter-acts, petitions, amendments, investigations, and appropriations, huge tomes minified by official English into circulars, pamphlets, fly leaves, and monographs, cholera histories, bibliographies, catalogues, inquiries, and what not, he who maintains his equipoise and understanding of the doings of our Washington confrères must have both a clear head and plenty of leisure to stay always on the watch-tower. We therefore make no apology for informing our readers that the intention appears to be to complete the medical and surgical history of the war in three so-called parts; each part being composed of two volumes,—one medical and one surgical. Why we could not have simply had a medical history in three volumes, and a surgical history in like form, is not apparent to the superficial observer. Certain it is, however, that the elephantine quarto of over one thousand pages, which recently reached us from Washington, is the second volume of the second part of the medical and surgical history of the war: so that one volume (the second volume of the third part) alone remains wanting to complete the surgical archives of the rebellion.

The work of Dr. Woodward has not progressed so far as has that of Dr. Otis, and much is still wanting to the completeness even of the latter. Yet we trust, now that Congress has granted funds whereby the rain-beaten, weather-scarred stump of the Washington Monument is to rise to the full proportions of its inevitable ugliness, that neither money nor labor will be stinted for the completion of this truly noble monument of American humanity and professional skill.

Proud as we are of these volumes as the work of American physicians, we feel still more deeply the satisfaction because in no other civilized community could such an undertaking continue, for in no other during twenty years of peace would no rougher voice than that of a "Sitting Bull" or of a Congressional retrenchment committee disturb the leisure of the medical staff of the army.

The present volume is composed of four chapters, which are numbered continuously with those of the first surgical volume. In the first chapter,—chapter vi.,—besides laborious discussion and records of striking individual cases, are tabulated 8538 cases of wounds of the abdomen; in chapter vii., 3100 cases of injuries of the pelvis; in chapter viii., 12,681 cases of shot flesh-wounds of the back; in chapter ix., 88,741 cases of wounds of the upper extremity.

In the first surgical volume, published some time since, after various preliminary matters, the injuries of the head, face, neck, spine, and chest were discussed in five chapters, based upon the records of forty-nine thousand and sixteen cases.

In the third surgical volume, *i.e.*, the second volume of the third part, there will be a chapter on wounds of the lower extremities; one on luxations and fractures not gunshot; one on burns, scalds, and frost-bites; one on generalities of gunshot

wounds, and their results and complications, such as pyæmia, gangrene, etc.; one on generalities as to amputations, ligations, and other operations; one on anæsthetics and the materia chirurgica; and one on transportation of the wounded; the whole to be followed by an index, upon whose completeness will rest very largely the practical value of the volumes.

We have thus endeavored to give our readers an idea of the scope of the volume before us; and we have refrained from praising the manner in which Dr. Otis and his coadjutors have performed their work, because such praise seems too commonplace. As ordinary exclamations belittle the grandeur of Niagara, so in the presence of such a labor, raised upon an infinite Golgotha of human agony and death, silence seems most befitting.

This much, however, we may say: no meed of acknowledgment or reward which the united profession of our country could bestow would be beyond the honest earnings of the shrinking, almost shame-faced, author of the book before us.

CORRESPONDENCE.

LONDON LETTER.

[From our Special Correspondent.]

THE London season is now rapidly drawing to a close, and the chief subjects of professional chat are the different forms of holiday enjoyment. Some prefer a long walking tour; others advocate the rod as furnishing the most perfect mental relaxation,—for who that thoroughly enjoys fly-fishing could ever think of other subjects and fish successfully? some look forward to the tramps over the heather in pursuit of the grouse; while to many a Continental tour is the most attractive, even if not the most restorative, holiday they could find. With a large number the annual meeting of the British Medical Association at Sheffield will form the first part of their holiday. With so many attractions in the form of its own manufactures, and the near neighborhood of some of the most charming parts of Derbyshire, it is expected that there will be a good meeting. Yorkshiremen are noted for their hospitality, and Sheffield can well afford to be generous. But, whatever form the holiday tour takes, in most cases it will be an economical one. There are but very few of the more fortunate members of the profession who can be indifferent on this score this autumn. The London season has been very quiet, and already town is visibly thinning, and a large portion of society are away to the comparative economy of their country-seats, instead of lingering in town till the last moment. Economy is the order of the day, and the luxuries of professional consultations are being largely foregone. As for the general practitioners, whose services can scarcely be so dispensed with, they have had to undergo the trial of an unwontedly healthy season. One way and another, the balances at the bankers' will not indicate a very expensive holiday for the profession this year.

There is very little epidemic disease abroad at present. The smallpox hospital, lying snugly on the southern slope of Highgate, looks very quiet and deserted, very much like a country-house when the family are away. The outbreak of scarlatina along the western edge of the metropolis is gradually wearing itself out, having caused little mortality, though its presence has been extensive and prolonged. Much, doubtless, of the lessened mortality is due to the improvements in modern treatment: the cool treatment of the rise of the fever, the general use of antiseptics and disinfectants, diminishing the severity as well as the spread of the disease, the careful treatment of the desquamative stage, the protection of the sensitive cutis from cold, and the carbolic acid and oil inunctions, disinfecting to a great extent the exfoliated cuticle,—all have done much to restrain the virulence of this scourge. In the treatment of the sequelæ of the exanthemata the restorative element is a large one. Nevertheless, in many cases the patient does not progress favorably, and the reason seems inexplicable. It will often be found to consist of the drain of hæmoglobulin from the breaking up of the red blood-corpuscles and the draining away of this highly elaborated compound in the urine. If the test for albumen be boiling the urine, no evidence of the presence of this uro-hæmatin, as George Harley terms it, will be found. But if nitric acid be slowly poured down the side of the test-tube, the pink shade will at once be seen. It is as often found without as with albuminuria. If it seem desirable to examine still further, then some hydrochloric acid may be added to another portion of the urine, and the mixture heated. On boiling, a deep claret color will be produced. When uro-hæmatin is so found it is well to increase the amount of iron given, and to add to it quinine and strychnine, together with good nutritive food, and cod-liver oil, when a rapid improvement will usually be inaugurated. These sequelæ of the exanthemata are commonly presented in the out-patient departments of our hospitals, and are

often intractable if not approached skilfully and energetically. There is often a long-protracted imperfect convalescence, because there is some drain existing which is overlooked, and consequently not attended to. To use the language of Hermann's Physiology, the body expenditure is in excess of the body income, and so general improvement is impossible. This is the proper way in which to look at all questions of debility. It is of no use to increase the body income by good food, tonics, and chalybeates as long as the excessive body expenditure is going on unarrested. If it be possible to check the outgoing, then rapid improvement can usually be inaugurated; if it be not possible to check the expenditure, then of course the improvement will be proportionately slow and unsatisfactory. We possess no special means of checking the loss of uro-hæmatin, and consequently are driven to employ all the means we possess of increasing the body income. It is some satisfaction, at any rate, to know where the drain is, and what it is. The importance of looking to all drains is scarcely sufficiently appraised by many of the profession. The following case is to the point. A patient presented herself at a special hospital a day or two ago with an in-patient's letter, filled up by one of the residents of an old-established general hospital, usually held to be the first in London. She had been an in-patient there for three months. She had had hæmoptysis, for which she had been treated. It being necessary to examine her for admission, in order to countersign the letter, it was at once found that she had some caseous pneumonia of the tip of the right apex, but it was very limited, and presented no grave symptoms. The patient was waxy and anæmic, looking as if her blood was drained away by some excessive loss, and her appearance altogether indicated something more than the lung-mischief to account for it. On inquiry it was found that she was unwell every three weeks, and that the loss was profuse, and continued for eight or nine days. On examination she was found to have great tenderness and fulness of the left ovary, and the left rectus muscle over it was as hard and rigid as the right rectus becomes in hepatic abscess, so keeping the parts at rest and limiting the movement. The uterus was low down in the pelvis, enlarged, with a hard, rough os, feeling almost stony in its hardness. In addition to the catamenial loss there was much leucorrhœa on movement, and, from the ovarian congestion, repeated orgasm every night. No wonder, then, that the poor woman was drained and anæmic, and that she had not improved during her residence in hospital. All attempts to improve the patient were futile, because the attention had been directed solely to the lung, while the pelvic mischief had been, according to her statement, utterly and entirely overlooked. In this case the first point in the treatment was of course to limit the drain, and the means adopted were as follows: full doses of bromide of potassium were given to lower the erotic excitement, while alkaline purgatives with decoction of aloes were prescribed to unload the bowels thoroughly, and relieve the congestion of the pelvic viscera by the relations of their blood-supply to the hemorrhoidal vessels,—a combination of measures most potent in such cases. In all probability the lung-mischief was truly secondary to this drain; and an improvement in the general condition by checking the drain will lead to rapid improvement in the state of the lung. Local measures, as cold hip-bath and alum-water injections, were recommended. In caseous pneumonia in women it is simply folly to treat the patients on any plan which does not include the necessary attention to the drains from the reproductive organs, which are the almost invariable accompaniments of these structural changes in the lungs in women.

According to all *a priori* reasoning, the order of events in this case should have been reversed: the lung only should have been observed at the special hospital, and the pelvic mischief been discovered at the general hospital. But, unfortunately for the opponents of special hospitals, it does not follow that a specialty always narrows the mental vision: if properly observed, the specialty rather widens the view; and an extensive observation of caseous pneumonia tends very distinctly to cause the malady to be seen in more extended, and not in narrowed, relations and associations. I shall have something to say in a future letter as to the present position of general and special hospitals, and will demonstrate the different factors which determine the growth and development of special hospitals, and which will tend more and more to the evolution of these special hospitals, unless some very essential and radical reform is carried out in general hospitals, both as to their appointments on the staff and their method of conducting their clinical work.

Mr. Spencer Wells recently removed at the Samaritan Hospital a large spleen, which had been diagnosed as an ovarian tumor. On tapping it its nature became apparent, and nothing was left but to give the patient a chance for her life by its removal. It weighed eleven pounds. The vessels were all carefully secured, but the patient sank in a few hours. This is a very rare form of diagnostic error, and there must have been a very close resemblance to an ovarian tumor, for Marion Sims was present at the time, and these two masters of the subject are not likely to have been readily deceived.

A rather interesting paper was in the *Lancet* of July 5, where an account is given of delirium closely resembling the delirium tremens of drunkards, occurring in an Indian prison, and caused by insufficiency of food. Two

Arabs of voracious appetite were sent to prison, and put upon the ordinary diet, when after a little time they became delirious, and only recovered on being placed upon a more liberal dietary. The points of interest about these cases are, first, the fact that delirium can be so induced; and, second, the physiological bearings of the subject. It is obvious that the amount of food quite sufficient for the wants of one individual, or, indeed, of most persons, and of the community at large, is inadequate to the needs of certain organisms. It is fairly clear that the gluttony of these men had something more in it than the mere satisfaction of eating. However it was occasioned, they required more food than is the case with the average man. It is difficult to see how their systems should require more aliment than ordinary beings, and why and wherefore they should need an unwontedly large quantity of glycogen and peptones for the efficient working of their organisms, but it seems pretty clear that they did actually require more. It is a well-known fact about horses, that some require very much more food than others in order to execute a given quantity of work; and it would appear that such is the case with man. The only solution at all feasible seems this: that certain organisms are very wasteful.

Considerable attention has been directed lately to the subject of writing prescriptions. In one case a patient died from the illegibility of the writing. What was written was "Benzol. rect.;" the dispensing chemist read it "Benzol. nit.," and gave the patient a fatal dose of nitrobenzole. The prescription has been photographed, and the bulk of opinion is in favor of the view that the chemist was fairly excusable for his part of the error. Of course it would have been better if the chemist had consulted the prescriber in the matter; but again, on the other hand, it is awkward if a chemist has to refer a prescription to the writer: it does not have a good effect upon the mind of the individual prescribed for. It is very important that prescriptions should always be written so legibly that the matter is unmistakable; it should be put safely beyond the possibility of doubt. It does not add very much to the time taken up, probably less than one minute, betwixt writing a homicidal prescription and a perfectly legible one. Benzole is not in common use as an expectorant, and the person prescribing it was very blameworthy in not writing distinctly. Altogether, it was a most unfortunate business, and not calculated to carry comfort to the minds of the community at large, who will find in it some further excuse for indulging in patent medicines and in innocuous homœopathy. The other case bears on the interest a physician has in his prescription, and the rule of the College of Physicians to permit no collusion betwixt the prescriber and the dispenser. It is notorious that prescriptions are lent about, copied, given away, and utilized in a manner which can scarcely be regarded as other than unscrupulous. They are made to do duty for an unlimited number of persons over and above the one for which each is written. It is very certain that no prescription should be compounded by a chemist after a certain period has elapsed, dating from the time the prescription is written or initialled. This should be done in the interest of the patient as well as of the physician. The profession suffers enough one way and another without this system of wholesale robbery. The guinea fee stands now as it did two hundred years ago, in the days of the Restoration; but how much less will the guinea buy now than it would then! In fact, the profession, as regards consulting men, is no longer adapted to any but those who have fair private means and can comfortably wait their time. It is fast taking rank alongside the army and the church, as a gentlemanly resort for men of means who do not want to be absolutely idle, and who find the addition to their income (though long deferred) desirable when their children are springing up. The number of men attached to hospitals in London who have never been heard of beyond their hospital walls and their hospital circulars, and who never do anything worth a row of pins, and never will do anything, either for the community or themselves, in this world, is notorious. Social influence, nepotism, jealousy on the part of seniors who do not fancy clever juniors, the caprices of the lay committees, so handicap the chances of an able but poor man that he too commonly prefers private practice to facing the difficulties and obstacles before his path in the higher walks. Still, it is quite right that the College of Physicians should adhere to their rule, and also that country practitioners should feel dissatisfied when their patient returns from a consultant with such a prescription as "Mist. fer. c., Strych. ℥i; ter in die," on the first visit, and "Piluli tonici, xii; 1 bis in die" on the second. Of course, there has been an explanation from both consultant and the chemist to whom the patient was directed to get the prescription dispensed, but it would have looked as well if the prescriber had written down *in extenso* the formula of each. If anything has to be done in this matter to protect the prescriber, it must be in some other form than this irregular and rough adjustment betwixt consultant and patient. A long, careful investigation of a case, a detailed account of the dietary, of the hygienic measures, etc., to be adopted, and an accurately devised prescription, are most inadequately remunerated by a guinea, or even two. And yet the patient if doing well often never returns, and it may seem rather cynical, but it is certainly true, that "a physician usually makes least from the patients to whom he does the most good." In both cases pressure of time and haste have

been pleaded; but the plea is invalid. The prescription should be written clearly on all occasions, however badly the physician may write ordinarily. One well-known physician in London writes a hand simply villanous in its illegibility, but his prescriptions are always clear and carefully written; his conscience will not permit him to write them badly.

The volunteer camp at Wimbledon is now up, and the intensely hot, close weather has been a severe test of the sanitary arrangements adopted. There is, however, no offensive odor to be detected, and the men, including members of the profession, say that the closets are as good as can possibly be expected, and that they are not at all objectionable. The Moule's earth-closets are the means employed. The present weather forms a very severe test for them. Last year the camp was nearly drowned out with rain, this year the common is brown and dusty. One of our profession, Lieut. Mitchell, is selected as one of the representatives of Scotland at the forthcoming international match at Creedmoor. Though not quite so famous in medicine as in rifle-shooting, he will give a very good impression of the rising generation of our country practitioners, and will compare favorably with the most stalwart of your Western doctors in thews and sinews.

The weather continues broiling hot, and yet there is very little summer diarrhœa complained of so far. Whether this be due to the scarcity of fruit or not, may be made a matter of question. It is a matter of much importance in treating summer diarrhœa to distinguish the exact character of the diarrhœa. If there have been a number of profuse and free evacuations, and the bowels are thoroughly emptied of their irritant contents, then it is proper to give astringents with opium. Hæmatoxylin is the most satisfactory astringent, and may be given in infusion with alkalies, or, better still, with some sulphuric acid and opium. If there be much acidity in the bowels, then the old chalk and catechu mixture is useful. But it frequently happens that the diarrhœa is of another character. The motions are frequent, scanty, and accompanied by much discomfort; in fact, the natural attempts are insufficient to remove the irritant matter in the intestines. There is a secretion set up in the bowel to wash away the offending mass, but the flow so excited is below the mass, and so is ineffectual in its removal. Under such circumstances it is proper practice to give a purgative,—a dose of castor-oil, mineral-water, or a Seidlitz powder,—and so set up, as Brunton has pointed out, a free flow above the offending mass, by which it is swept away. On its removal the diarrhœa usually ceases; if it still persist, then an astringent with an opiate is indicated. But the prescriber must be clear about the complete evacuation of the contents of the bowel ere the diarrhœa mixture is given. If the emptying of the bowel is not complete, the effect of the mixture is to check the natural action for the removal of the offending matter, and so an irritating and painful condition is kept up and maintained. For summer diarrhœa, as a rule, a dose of castor-oil is much more useful than an immediate resort to astringent mixtures. It is only after several free and copious stools that opiates and astringents are permissible. Where the natural action has been checked by resort to diarrhœa mixtures it will be found good practice to give a full dose of rhubarb, which first opens the bowels and then locks them up, and so clear out the bowels. An ounce of tincture of rhubarb is an old-established cure for a troublesome diarrhœa, often owing its troublesomeness to the erroneous treatment to which it has been subjected.

Sir William Fergusson is much relieved, and hopes are entertained that he may be spared a little longer. The *World*, a very enterprising city newspaper, recently published an account of the surgeon baronet, with a portrait of him, showing the interest the public take in him.

PROCEEDINGS OF SOCIETIES.

PATHOLOGICAL SOCIETY OF PHILADELPHIA.

THURSDAY EVENING, APRIL 27, 1876.

VICE-PRESIDENT, DR. H. LENOX HODGE, in the chair.

Mitral stenosis, dilatation of tricuspid orifice. By DR. E. E. MONTGOMERY.

MISS H., æt. 34, was sent to me by Dr. Duer at the beginning of the present year, with the following history. Her father is living and healthy; her mother died with consumption; she has a sister suffering with organic disease of the heart.

She has herself enjoyed good health, excepting shortness of breath, until within the last two years. Never has had rheumatism or any acute disease. Two years ago her difficulty of breathing increased; was troubled with a severe cough, and frothy, mucous expectoration, frequent palpitations, and slight orthopnœa. Her menses ceased about this period.

About the 1st of July, 1875, her cough and general condition about the same, she noticed that her feet were slightly swollen; this swelling continued to increase until, at the beginning of the year, when I saw her, the legs were distended to the utmost degree, the skin below the knees had blistered and broken, serum exuding had set up an erysipelatous condition; the abdomen was moderately distended, fluctuating upon palpation; skin slightly jaundiced; appetite and digestion good, bowels constipated, urine scanty, alkaline, large de-

posits of urates, but contained no albumen; breathing difficult, orthopnœa complete; cough troublesome; pulse 120, feeble, irregular, less distinct in right arm; mucous râles were heard over lungs; percussion clear.

Heart.—Area of dulness increased; impulse in normal position, but very forcible. A distinct blowing sound could be heard synchronous with the first sound, most distinctly at the apex, and again over the left third intercostal space; I was unable to distinguish the sound previous to systole. Every third or fourth beat was attended with a marked rotation of heart from left to right, striking the chest and returning to its position with a lunge. The contrast was marked between the force of the heart's impulse and the feebleness of the pulse.

Treatment.—A daily evacuation of the bowels was produced by the use of pulv. jalap. comp. ʒ, diuretics were given, beginning with inf. digital. and potass. acet., followed by calomel, squills, and digital., digital., squills, and juniper, and so on through the list, winding up with inf. scoparii, which seemed to produce a little effect. Dropsy still increasing, resort was had to elaterium, gr. ¼ daily. Under this the dropsy entirely disappeared in three days, but it returned again in a few days.

In the early part of March she was seen, at my request, by Dr. Duer, who advised tapping; but to this she would not listen.

March 25 she sent for me, and desired to be tapped. The abdomen was stretched tight, the hands œdematous, skin of face and body purple from the obstructed circulation; breathing very difficult; entirely unable to lie down, though she was so weak that she had to be held in the chair.

Assisted by Dr. A. W. Johnston, I did the operation, removing three gallons of a straw-colored fluid. With the exception of some headache and nausea, she was immediately relieved. She was given inf. scoparii, fʒii, potass. acet. gr. xx, four times daily, with but little increase in the urine. The second day after the operation the right leg became inflamed and painful; the following day the left became in the same condition. The water flowed from the puncture until her death. No lymph was thrown out. Her strength rapidly failed, and she died April 11.

Autopsy twenty-four hours after death, in which I was assisted by Dr. Wolford.

Body considerably emaciated, abdomen prominent. *Thorax:* lungs were found in good condition, no marks of congestion, a slight pleuritic band at upper part of right, but slight effusion in pleural cavities. Heart in normal position; but little fluid in pericardium; both auricles and right ventricle were very much dilated and filled with blood. Upon opening the heart, a large well-formed clot was found attached to right auricle, and extending into right ventricle. The right side had undergone dilated hypertrophy, the tricuspid orifice being very large. The left auricle dilated, ventricle thinned and flabby, mitral orifice contracted so small as only to allow a lead-pencil to pass; the aortic valves were thickened and roughened, and the coats of the artery had undergone some atheromatous change.

Abdomen and the cavity contained some two gallons of fluid, with some flakes of lymph. No adhesion had taken place at the point of puncture.

Liver enlarged, fatty.

Spleen small, very firm, filled with blood. Kidneys large, very firm, capsule easily removed; they were filled with blood, and there were points of extravasation; considerable pus in the pelvis.

Kidneys from a case of lymphatic leukhæmia. By FREDERICK P. HENRY, M.D.

On February 12, a Swedish sailor, æt. 23, was admitted to one of the surgical wards of the Episcopal Hospital, suffering from retention of urine. It was immediately ascertained that the retention was a symptom of paraplegia, and the case was transferred to the medical side. There was partial loss of sensation and almost complete loss of motion in both lower extremities, great tympanitic distention and decided tenderness of the abdomen, and marked febrile movement. The paraplegia had occurred suddenly ten days before admission, and was quickly followed by incontinence of fæces and retention of urine. After admission there were several attacks of epistaxis.

It was evident, from the above-mentioned signs and symptoms, that the case was not one of simple paraplegia. The average morning temperature for nineteen days, from February 12 to February 29, inclusive, was 101⅓°. The average evening temperature for the same period was 102⅓°. There were no marked remissions, and no intermissions. The average pulse and respiration were also greatly above the normal. Urine contained neither albumen nor casts. The man improved under treatment, as was evidenced by his appearance, increased power over the lower limbs and the bladder, and a reduction in the temperature and in the frequency of the pulse and respiration. On March 5 there was an attack of hæmaturia, which continued for about three days, and was completely recovered from. On March 13 there was another large discharge of blood from the urethra, and about twenty-four hours after the man died from exhaustion.

At the autopsy, the abdominal cavity was first explored. The intestinal coils were very dry and pale, almost translucent. Mesenteric glands greatly enlarged. Intestinal mucous membrane, from the ileo-cæcal valve to the stomach, was perfectly healthy. Spleen slightly enlarged and more deeply colored than normal,—of a blackish-purple hue. The kidneys exhibited are seen to be enlarged to nearly

twice the natural size. They are covered with numerous patches of a whitish medullary substance, slightly raised above the surface. The cut surface shows an almost general infiltration of this material through the whole organ, involving the pyramids as well as the cortex. The pelves and ureters are enormously dilated; in the fresh state the ureters, in appearance and size, resembled the intestine. There was no urethral stricture and no prostatic enlargement, the catheter being always passed with ease. A leukhæmic patch was observed upon the upper surface of the liver, which extended deeply into the substance of the gland. A firm, partly organized clot was found in the lumbar region of the cord outside of the dura mater.

The nature of the pathological process giving rise to the changes observed in these kidneys is, I think, not so simple as may appear at first sight, and on this point I should like to have the opinion of the Society. The question, I think, lies between the form of suppurative nephritis known as surgical kidney, and leukhæmic infiltration. In favor of the former view is the fact that there was retention of urine, which, by its backward pressure, has caused great dilatation of the ureters and pelvis of both sides; while opposed to it is the fact that the uriniferous tubules preserve their epithelium, as will be seen in the section under the microscope, and as was observed by me in numerous other sections from the same organs. I see it stated in the works which I have consulted that the blocking of the tubules with epithelium is a prominent feature of this form of inflammation, especially when acute.

In favor of leukhæmic growth it may be mentioned that there was a well-marked leukhæmic tumor of the liver, that the case was one of leukhæmia, and that hemorrhage occurred from the kidney, since one view of lymphomatous tumors is that they originate in hemorrhagic extravasations. On the other hand, the cells composing the infiltration are not imbedded in the reticulum characteristic of the lymphomata.

I have not been able to trace the source of the hemorrhage, but it is certain that it did not have its origin in the Malpighian bodies. The other organs were sound, with the exception of the bladder, the cavity of which is dilated and its mucous membrane catarrhal. The aortic valves were fenestrated.

Dr. JAMES TYSON was inclined to believe the softened points in the kidney were not of leukhæmic origin, but rather the result of a parenchymatous nephritis induced by the obstruction in the ureter. For, in the first place, this condition, and its consequent pelvic pyelitis, are common causes of abscess of the kidney; and in the second, it would seem as though the leukhæmic condition undoubtedly present was scarcely intense enough to involve the kidney and leave intact the spleen, which is much more commonly involved in leukhæmia.

Dr. HENRY desired to know the probability of the marrow of the bones being involved in these cases. He had made no minute study of the medulla, but he could, in an ordinary naked-eye examination, discover no change in either the red or yellow marrow.

Dr. TYSON said the leukhæmic changes in the medulla of bone consisted chiefly in a return of the marrow to its embryonic condition, the normal adipose cells being substituted by immense numbers of leucocytes, the effect of which is to remove the red hue of the red marrow, and produce a white appearance, even that of pus; so that the retention of the red color was evidence against any such change, although nothing short of microscopic examination could determine the question accurately.

Pathology of phlebitis. By C. B. NANCREDE, M.D.

(See original communication in the current number of the *Times*.)

The intestinal lesions of typhoid fever. By FREDERICK P. HENRY, M.D.

At a recent meeting of the Pathological Society, I exhibited under the microscope a section of a Peyerian patch in the stage of medullary infiltration, and read a paper in which I attempted to explain why it is that the intestinal lesions of typhoid fever gradually increase in severity as we approach the ileo-cæcal valve, an attempt which, I believe, has not been made hitherto.

As I do not flatter myself that my views made sufficient impression to be readily recalled by the gentlemen who were present at that time, and as there may now be present some who were then absent, I shall give a brief *résumé* of my paper.

Starting from the pathology of gastric ulcer, as taught by Rindfleisch, who, I think, has demonstrated that that lesion has its origin in a hemorrhagic infarction of the he. lthy mucous membrane of the stomach during violent and long-continued emesis, I endeavored to show that a similar result might be produced in the diseased mucous membrane of the ileum by a similar interference from peristaltic contraction of that division of the alimentary canal.

From the fact that the superior mesenteric vein has its origin in the lowest portion of the ileum, it required no great degree of temerity to venture upon the assumption that there is in that portion of the tract a tendency, gradually increasing from above downwards, towards a mechanical hyperæmia.

Thus I endeavored to explain the well-known gradation of the lesions by, first, the peculiarity of the vascular distribution, to which natural tendency is added, secondly, in the great majority of cases, an abnormal amount of peristalsis. The first question is more strictly pathological; the second has an evident bearing upon treatment.

The following illustration, made use of in

my last paper upon this subject, will explain in a few words my views as to the effect of peristaltic contraction upon these lesions. Suppose a follicle two feet above the ileo-cæcal valve to have arrived at the height of the stage of medullary infiltration; at this moment a peristaltic wave traverses the canal; it may not be sufficiently powerful or long-continued to cause sloughing of the mass, but transfer it to the neighborhood of the valve and the case will be different. The effect of a peristaltic wave gradually increases in severity as we approach the valve, owing to the gradually increasing tendency to mechanical hyperæmia, and sloughing gradually becomes more extensive in the same direction.

In conversation with a gentleman for whose opinion in pathology I have the highest respect, it was intimated that Rindfleisch's theory of gastric ulcer, although extremely plausible, was open to criticism. I take this opportunity of replying that old theories hold good until a greater number of facts support a new one. But is not Rindfleisch's theory proven by the facts? Who can read the case reported in his Treatise on Pathology without being convinced? A man came to the surgical clinic at Bonn, with strangulated inguinal hernia; there was violent vomiting of "bilious, afterwards bloody-striped, matter;" death occurred in about thirty-six hours from the time of admission, and at the autopsy was found a number of recent hemorrhagic infarctions of the stomach, "of which one was a complete ulcus simplex." In 1874 I presented to the Society a specimen of gastric ulcer associated with cirrhosis of the liver, and called attention to the significance of the association, in these words: "I am not aware that any frequent connection has been noticed between these two diseases, but, if so, it would seem to add additional weight to Rindfleisch's theory of the pathology of gastric ulcer." But, in order that any discussion to which this paper may give rise may not be diverted into side-issues, I will state that my theory is not dependent upon that of Rindfleisch, although undoubtedly suggested by it. Gastric ulcer is supposed, by that theory, to be developed in a healthy condition of the mucous membrane, while the iliac ulcers are themselves secondary.

The fact that the lesions increase in severity as we approach the valve is so notorious that it would be an absolute waste of time, at this late day, to grope for facts in support of what may be regarded as an axiom in the pathology of typhoid fever. That the locality of perforation in an uncomplicated case (uncomplicated pathologically) follows the same law, is a logical deduction from this generalization. When the ulcer is deepest, perforation is most imminent.

In the discussion to which my paper gave rise, exceptional cases were referred to in which the lesions were most severe at a considerable distance above the valve; also cases in which perforation occurred comparatively high up. It was also stated that perforation had been known to occur during a constipated state of the bowels, and, again, that diarrhœa at a late stage of the disease was very uncommon. I propose to consider each of these objections, and will waive every advantage in my favor that I might justly claim, from the fact that the cases were so exceptional as to impress themselves upon the memory of those whose fortune it was to encounter them.

First, as to the occurrence of extensive ulceration and perforation comparatively high up. The mere record of such facts alone has no bearing whatever upon the theory which I would defend. The stage of the disease is to be considered; the condition of the follicles below the perforation, and the occurrence, or otherwise, of diarrhœa immediately preceding death. Even this is not enough. The condition of the veins leading from these patches is to be examined, in order to determine the presence or absence of thrombosis. The local influence which a thrombotic occlusion of a twig of the mesenteric vein may have upon the pathological process is readily conceived, and has, I believe, never been adverted to. The nearer the centre of the circulation, the more wide-spread the effect of such a thrombosis. Where, I ask, would thrombosis be more apt to occur than in the branches of the superior mesenteric vein, during an attack of typhoid fever? In all cases of extensive ulceration and perforation, but especially where these occur higher up than usual, I would recommend a careful examination of the veins which convey the blood from the seat of disease.

In the next place, it was stated that perforation had been known to occur during a constipated state of the bowels. I think I can affirm, from an examination of a few recorded cases, that it occurs much more frequently in connection with diarrhœa, and, besides, I have never advocated the production and maintenance of a state of constipation in typhoid fever, as will be seen further on, when I come to consider the proper use of laxatives in that disease.

Finally, as regards the statement that diarrhœa is very uncommon in a late stage of typhoid fever, I would reply that if this be so it has been controlled by treatment. That diarrhœa may occur at a late stage, of such severity as alone to be the cause of death, is shown by an instructive case reported to the Society by Dr. Pepper (Trans. Path. Soc., vol. v.). In this case death occurred on the twenty-third day. The patient "had received no medical treatment until the twentieth day of the disease." There was "incessant colliquative diarrhœa . . . The disease of the patches of Peyer towards the lower end of the ileum was extraordinarily

intense. The intestine presented for more than a foot a mass of large, oval ulcers almost confluent, with thick rounded edges, and irregular fungous surfaces." A better case could not be selected to illustrate my views. The severest form of diarrhœa occurs at a late stage of the disease; the patient has received no treatment, and the "disease of the patches of Peyer towards the lower end of the ileum was *extraordinarily intense*."

Specimens illustrating the pathology of typhoid fever are not often presented to the Pathological Society of Philadelphia, unless there is something unusual in the clinical history, probably because the subject is erroneously regarded as being somewhat hackneyed and commonplace; nevertheless, in all but one of the small number of cases recorded in the fourth and fifth volumes of its Transactions, I find confirmatory evidence of the peristaltic theory. The exceptional case was that of a child aged two years and three months, who succumbed to an illness of twenty-four hours' duration, the symptoms of which were entirely cerebral; the intestinal lesions also were so indistinct that a doubt was raised, at the time the specimens were presented, as to the disease being typhoid fever (Trans. Path. Soc., vol. v.).

In vol. iv., a case of perforation seven inches above the valve is reported by Dr. J. C. Wilson.

Of two specimens of intestinal perforation from typhoid fever, which I presented to the Society (Trans. Path. Soc., vol. v.), in one the perforation is recorded as being "a few inches above the valve." In the other, in which the perforations were unusually large and numerous (there were three distinct perforations, two of which were in one patch), the degree of their vicinity to the valve is not mentioned, but the case is instructive as illustrating the occurrence of perforation in connection with profuse diarrhœa. For several weeks prior to the patient's admission to the Episcopal Hospital, the diarrhœa had amounted to "from fifteen to twenty stools daily."

As these observations are not so much intended to prove an assertion as to explain a theory, I have refrained from referring to other cases than those recorded in the recent volumes of the Pathological Society of Philadelphia. I have selected these because they were at hand, and because they and the specimens illustrating them are familiar to many who will read this paper.

Diarrhœa and peristalsis have, so far, been used as interchangeable terms; but a word of caution is here necessary. The mesenteric glands may possibly be enlarged to such a degree as to compress the vaso-motor fibres of the sympathetic nerve which are conducted to the intestinal vessels by the mesentery, and by this vaso-motor paralysis give rise to a serous diarrhœa, independent of peristaltic contraction. The physiological experiments of Moreau illustrate the effect of paralysis of this portion of the sympathetic.

In the report of a case of peritoneal tuberculosis (Trans. Path. Soc., vol. v.), I referred to pressure of enlarged mesenteric glands as a possible cause of diarrhœa. In the case referred to, the peritoneal coat of the intestines was "covered with tubercles from the duodenum to a short distance below the ileo-cæcal valve." A flattened tumor, several inches in circumference (about six), was found in the mesentery at or near its junction with the vertebræ." This tumor was composed of a mass of enlarged mesenteric glands. "The mucous membrane of the intestine was perfectly healthy." There was profuse diarrhœa, averaging from twelve to fifteen watery stools in the twenty-four hours." My report of the case concludes as follows: "I would like to ask the opinion of the Society as to the cause of diarrhœa in this and similar cases. In this case it has occurred to me that the tumor found in the mesentery might have caused pressure sufficient to paralyze some of the sympathetic fibres supplying the small intestine, and thus have given rise to a state of congestion which relieved itself by a transudation of serum." The same cause, pressure of enlarged mesenteric glands, may possibly be regarded as a factor in the obstinate and so-called colliquative diarrhœa of tabes mesenterica.

In the discussion of this subject at the last meeting, it seemed to be the opinion that I advocated the production and maintenance of a state of constipation of the bowels in typhoid fever, by the use of opium. My remarks were intended to remove this misconception, but were perhaps not sufficiently emphatic. I believe that the degree of peristalsis which prevails in the large majority of cases of typhoid fever is altogether abnormal, and that small and frequently-repeated doses of opium, *or any other drug that will allay spasm of unstriped muscle*, will merely serve to restore the peristaltic function to a healthy condition, or reduce it to a degree somewhat below the normal. The vermicular contraction of the small intestine is absolutely unperceived in health, showing that a very moderate degree of muscular contraction is sufficient to propel the intestinal contents into the colon. The voluntary muscular system is perhaps largely concerned in this propulsion, as is evidenced by the effect of exercise in regulating the bowels. The function of defecation can have, I think, no injurious effect upon the return circulation from the ileum, but would rather favor it by the pressure exerted from without by the abdominal muscles. It is not, therefore, that function that I would suppress, but when laxatives are needed I would recommend those that excite the least amount of peristalsis.

Castor oil, which is a powerful exciter of peristalsis, evidenced even in health by the griping which it causes, should, I think, be condemned as a purgative in typhoid fever.

This purgative is the one almost invariably used in that disease, and largely from an odd association of ideas. Its physical properties as a lubricator have caused it to be regarded as soothing to the inflamed mucous membrane. Doubtless a piece of lint soaked in castor oil and covered with oiled silk or waxed paper would be an excellent dressing for a typhoid ulcer; but it is unnecessary to prove that the drug has no such surgical action when administered medicinally.

The mode of action of purgatives has long been a disputed point, one set of investigators maintaining that they act by increasing peristalsis, the other that they increase the natural watery secretions of the intestinal mucous membrane. The truth seems to lie between these extremes: some drugs act chiefly by increasing peristalsis, while others seem to act principally by causing a watery secretion from the mucous membrane. Of the latter class are salines, and especially the sulphate of magnesium. The fact that sulphate of magnesium does not increase peristalsis is vouched for by such experimenters as Vulpian and Legros, while the latter declares this to be true of the whole class of saline purgatives. When, therefore, it is necessary to employ purgatives in typhoid fever, I would recommend salines in decided preference to castor oil, while enemata, as mere exciters of the function of defecation, are, I think, unobjectionable.

In conclusion, I would call particular attention to the fact that the theory which I advance is of a twofold nature. First, it takes into consideration the natural tendency to a mechanical hyperæmia in the ileum, gradually increasing from above downwards, and comprises every cause which increases this tendency, be it tumor, thrombosis, cardiac disease, disease of the liver, or what not. Secondly, it more particularly maintains the effect of peristalsis in a diseased condition of the ileum, as greatly influencing the pathological process.

The bearing upon treatment is entirely a secondary question, to which I have only alluded in passing, this Society not being the place for a full discussion of a question in therapeutics.

I had finished my paper at this point, but was compelled to add a few lines in answer to an objection made this very afternoon. It was that the intestinal muscular coat gradually diminishes in thickness as we approach the ileo-cæcal valve. This is undoubtedly true; but, so far from its being an objection, I regard it as a very decided confirmation of the truth of my views. It would seem as if nature had intended by this arrangement to counteract, *in some degree*, the tendency to mechanical hyperæmia in the lower portion of the intestine. Were it not for this arrangement, the normal peristaltic waves might produce a chronic catarrh in the neighborhood of the valve, while, in spite of it, the increased peristalsis of disease, in connection with the greater blood-stasis in the lower portions of the superior mesenteric vein, is sufficient to determine the well-known gradation of the intestinal lesions of typhoid fever.

REVIEWS AND BOOK NOTICES.

THEORY OF MEDICAL SCIENCE. By WM. R. DUNHAM, M.D.

This book is written for "the recovery of the fundamental principles involved in a correct theory of medical science;" or, in other words, to "demonstrate the ideal delusion which has invested materia medica and poisons with active principles and inherent powers." It is, in the abstract, improper to express an opinion about a book without having thoroughly read it, although at times some excuse may be found for such action. The farmer who, in digging a well, strikes a voluminous spring of bad water, usually finds it to pay better to shift the site of his operations than to attempt to persevere in the present digging. There are in the world many persons who cherish a strong suspicion as to the value of philosophy. Certainly, however, all will agree that a philosopher must be logical, if anything. The first twenty pages of the brochure before us have revealed so many illogical or fallacious statements or reasonings that we have lost faith in the author's success in setting the world right. The base of the whole argument lies in the following sentence: "Organic forces, both vegetable and animal, are called vital forces; and the vital force or vitality is the sum of the energies of a living body. It is that principle or power which establishes our individuality, and is a distinct force that converts certain materials into vitalized or living tissues," etc., etc.

Now, it is plain that the sum of all energies in the human body cannot be a distinct force. Many forces cannot be one force. Again, we read, "The peculiar, distinct, ultimate vital properties, which in the aggregate include all there is of vital force, are made apparent to our senses through the three properties of contractility, sensation, and sensibility." What the author here means is obscure; for how can properties include a force? but, if we interpret the sentence aright, its statements are not correct, for growth and development are *par excellence* the methods by which vital force manifests itself. On the next page we are told, "Contractility is manifested only by muscular fibre." This certainly is an error. Most tissues are possessed of contractility, and protoplasm has a high degree of it.

These instances could be multiplied, but we refrain. We will not break the law which forbids expressing an opinion concerning a book that has not been read through; but we trust

that, belonging to a short-lived family, we have shown sufficient reason for shirking the task of reading the brochure before us.

AN ELEMENTARY TREATISE ON DISEASES OF THE SKIN, FOR THE USE OF STUDENTS AND PRACTITIONERS. By HENRY G. PIFFARD, A.M., M.D. With Illustrations. London and New York, Macmillan & Co., 1876. Pp. 375.

A text-book on skin-diseases, written from the American point of view, describing these affections as they occur here, and adapted to the needs of the practitioner in this country, is greatly needed. The text-books in use are in many respects unsatisfactory. They treat of cutaneous disorders from a foreign stand-point, giving large space to diseases seldom or never met with in the United States, and passing over with slight mention affections constantly encountered in this country. In addition, methods of treatment adapted to our people are not adapted to others, and in this point the books heretofore at our command are frequently misleading. The ideal American text-book on diseases of the skin is a volume convenient in size and shape, clear and succinct in style, and original in the sense of containing the author's personal experience, combined with the result of intelligent study of the literature of the subject; the whole compacted into a homogeneous structure and infused with the spirit of the writer. The day when a text-book could be manufactured with the scissors and the paste-pot has passed, we trust, forever. But the ideal should possess more positive virtues. It should be practical, adapted to the general medical reader, giving ample space to the discussion of diagnosis and treatment, and keeping in the background the more recondite questions of etiology and pathology, however interesting to the specialist. Finally, it should confine itself to settled and admitted facts and theories, and should adopt a nomenclature generally accepted at the present time among the teachers and practitioners most likely to make use of the work.

Dr. Piffard is the first to attempt to fill the hiatus in American medical literature of which we have spoken, and he has produced a work of much originality, and evidently the result of no little painstaking care.

We should, however, fail in our duty were we to omit mention of several points regarding which we believe him to have committed grave errors.

Our chief grievance relates to the nomenclature which the author has preferred to any of those in common use. In reference to the introduction of a new nomenclature of skin-diseases in the abstract we have nothing to say, but respecting the advisability of bringing forward such a novelty in a text-book intended for practitioners and students, we think that little favorable can be said. The student who stores his mind with Dr. Piffard's classification will, we think, find himself unable, without great confusion of ideas, to read any other book on dermatology.

The same partiality for the French school of dermatology which has influenced the construction of the nomenclature is evident throughout the volume, scarcely enough regard being had for the views of other schools. The Germans in particular, to whom we are so much indebted for the investigation of diseases of the skin, do not receive that attention from Dr. Piffard which the importance of their work demands. Finally, we cannot give the meed of praise to the photographic illustrations, which we fear will not enlighten the student and practitioner to a very high degree as to the structures which they are supposed to portray. On the whole, the work before us, though containing much that is interesting to the dermatologist, is not one which we should unreservedly place in the hands of a student or junior practitioner. A. V. H.

ON PORT-WINE MARK AND ITS OBLITERATION WITHOUT SCAR. By BALMANNO SQUIRE, M.B. Lond. London, J. & A. Churchill, 1876. Brochure, pp. 32.

Believing the present methods of treatment for vascular nævi unsatisfactory, Mr. Squire has devised the following.

He employs a cataract-needle, the head of which is made about four times the size of that of an ordinary cataract-needle. With this instrument he scarifies the affected skin, making cleanly-cut and parallel incisions over the affected area and even also a little beyond it. The incisions are made about one-sixteenth of an inch apart. In order to render the operation painless, and also to prevent the flow of blood obscuring the surface to be cut, Mr. Squire first freezes the affected locality by means of ether-spray. The scarification completed over a limited area, a piece of blotting-paper is placed on the skin, and firm pressure kept up for ten minutes. This prevents hemorrhage, and no styptic is necessary. Minute precautions are given, which must be observed if the operation is to be successful. Should Mr. Squire's method prove available, it will be a decided addition to cutaneous therapeutics. A. V. H.

MISCELLANY.

HOW TO MAKE RAW MEAT PALATABLE TO INVALIDS.—The *Southern Medical Record*, May, 1876, copies the following from the *Industrie Blatter*. We omit the gramme, and give the equivalent in English ounces. The following recipe for this purpose has been given by Ivon: Raw meat (from the loin), 8.7 oz.; shelled sweet almonds, 2.6 oz.; shelled bitter almonds, 17 oz.; white sugar, 2.8 oz.; these substances to be beaten together in a marble mortar to a uniform pulp, and the

fibres to be separated by a strainer. The pulp, which has a rosy hue and a very agreeable taste, does not at all remind one of meat, and may be kept fresh for a considerable time, even in summer, in a dry, cool place. Yolk of egg may be added to it. From this pulp, or directly from the above substance, an emulsion may be prepared which will be rendered still more nutritious by the addition of milk. Lailler prefers the following preparation: Dried raw meat, 3.5 oz.; sugar, 1.4 oz.; wine, 7 oz.; tincture of cinnamon, 1 oz. It is a kind of electuary, very agreeable to the palate.

A Remarkable Case of Macrobiosis is reported in *Virchow's Archives*, April 27, 1876, by Dr. Ornstine, of Athens. The man, George Stravarides, died in Smyrna at the age of 132 years. Although this Methuselah had always lived an irregular life and had consumed an average of more than 100 drachms of brandy daily, he retained the full possession of all his five senses—as also a complete set of teeth—up to the moment of his death. He also continued to the last to attend to the duties of his avocation,—a baker. This man was born in 1743, in the reign of Mohammed I., and lived during the reigns of nine sultans.—*The Clinic.*

NOTES AND QUERIES.

ON MODERN "EMBALMING."

Analytical Laboratory,
45 South Diamond St., Allegheny City, Pa.,
July 31, 1876.

To the Editor of the Medical Times.

Dear Sir,—Some time ago an undertaker in this city brought to my laboratory a solution which he informed me had been used by another undertaker for the purpose of embalming dead bodies. He stated that the composition of this wonderful fluid was a trade secret, which the person who sold him the fluid would not divulge; that he had to pay an exceedingly high price for the article, and that the fluid answered the purpose so admirably that any dead body embalmed with it was effectually preserved from decomposition. He wished to be let into the secret, and therefore he came asking my professional assistance. On examining the fluid I found that it was simply a strong solution of arseniate of soda, containing three pounds five ounces to the imperial gallon. The solution is used in the following manner. The femoral artery is opened at the apex of Scarpa's triangle and the nozzle of a syringe is inserted, and the fluid to the amount of a quart or more injected, and, owing to the relaxed condition of the arterial valves, speedily finds its way to every part of the cadaver, and impregnates all the tissues with the arsenical solution. Now, it seems to me that while this system of embalming will most effectually arrest decomposition, it may be made the means also of effectually arresting the arm of justice. Suppose, for example, that a man wishes to poison his wife with arsenic, and that he has administered small and frequently-repeated doses of the poison. The symptoms might easily be mistaken for those of ordinary idiopathic gastritis; the woman dies, and the murdering husband has the body embalmed as above described; then, in these circumstances the art of the toxicologist would be of no avail, for, while it was a fact that the woman died from chronic arsenical poisoning, it was also a fact that all the tissues had *post mortem* been soaked in a solution of arsenic. Should it not be made a criminal offence to "embalm" in this manner?

Yours, etc.,
George Hay, M.D., Q.S.
Analytical Chemist.

August 7, 1876.

To the Editor of the Philadelphia Medical Times:

Dear Doctor,—Whilst I would not for a moment detract from the claim of any one for introducing a new therapeutic measure, I cannot admit the force of your statement in reference to the value of enforced cold baths in *cholera infantum* in your timely and valuable leader on "Thermic Fever" in your issue of August 5, in which you credit Dr. Comegys with the introduction of that remedy to professional notice. I learned the value of daily bathing for infants and children nearly twenty years ago from my preceptor, Dr. James F. Gayley, and for twelve years past I have used the *cold bath* in all cases of cholera infantum occurring in my practice, unless the ignorance of the parents prevented my doing so, as sometimes happens even in families of refinement. Who originated the method I do not know, but my attention was called to the matter in a medical journal now forgotten.

Very truly yours,
Wm. R. D. Blackwood, M.D.,
246 North Twentieth Street.

OFFICIAL LIST

OF CHANGES OF STATIONS AND DUTIES OF OFFICERS OF THE MEDICAL DEPARTMENT U.S. ARMY FROM JULY 30, 1876, TO AUGUST 12, 1876, INCLUSIVE.

By S. O. 69, A. G. O., July 26, 1876, the following promotions and appointments in the Medical Department are made:

PROMOTIONS.

To be Surgeons, with the rank of Major:

J. J. Woodward.
Wm. H. Forwood.
Ely McClellan.
S. A. Storrow.
W. D. Wolverton.
A. Hartsuff.
C. R. Greenleaf.
J. V. D. Middleton.
J. H. Janeway.
H. R. Tilton.
S. M. Horton.
J. C. G. Happersett.

APPOINTMENTS.

To be Surgeons, with the rank of Colonel:

Robert Murray.
Charles Sutherland.
J. J. B. Wright.
J. M. Cuyler.

To be Assistant Medical Purveyors, with the rank of Lieutenant-Colonel:

Charles McCormick.
C. H. Laub.

To be Surgeons, with the rank of Lieutenant-Colonel:

W. J. Sloan.
W. S. King.
James Simons.
C. C. Keeney.
J. F. Head.
L. A. Edwards.
J. F. Hammond.
E. J. Baily.

Greenleaf, C. R., Surgeon.—Granted leave of absence for one month, with permission to apply for an extension of one month. S. O. 115, Department of the South, August 8, 1876.

Happersett, J. C. G., Surgeon.—To report to the Commanding General, Military Division of the Atlantic, for assignment to duty. S. O. 162, A. G. O., August 9, 1876.

Rose, G. S., Assistant-Surgeon.—Granted leave of absence for two months. S. O. 146, Military Division of the Atlantic, August 1, 1876.

Semig, B. G., Assistant-Surgeon.—Leave of absence extended one month. S. O. 153, A. G. O., July 28, 1876.

Beall, G. T., Medical Storekeeper.—Granted leave of absence for one month. S. O. 154, A. G. O., July 29, 1876.

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8. COVERING (to save weight, and give water-proof finish).
9. BOWED JOINT (to attach the thigh-socket in certain cases).
10. CONFINING BAND (wire wound tightly around the leg, to strengthen and prevent splitting).
11. STUMP SOCKET—"*Safety Socket*"—(to support a part or all of the weight on the *end of the stump*).

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